

IN THE U.S. PATENT AND TRADEMARK OFFICE

APPLICANTS: Patrick G. Xavier

SERIAL NO.: Unknown GROUP NO.

FILED: September 12, 2003 EXAMINER:

FOR: CLEARANCE DETECTOR AND METHOD FOR MOTION AND DISTANCE

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

September 12, 2003

INFORMATION DISCLOSURE STATEMENT

The following sections are being submitted for this Information Disclosure Statement:

1. Preliminary Statements

Applicants submit herewith patents, publications or other information of which they are aware, which they believe may be material to the examination of this application and in respect of which there may be a duty to disclose.

The filing of this Information Disclosure Statement shall not be construed as a representation that a search has been made (37 CFR 1.97(g)), an admission that the information cited is, or is considered to be, material to patentability or that no other material information exists.

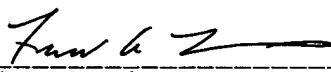
The filing of this Information Disclosure Statement shall not be construed as an admission against interest in any manner. Notice of January 9, 1992, 1135 O.G. 13-25, at 25.

2. Form PTO - 1449 (Modified).

3. The person making this statement is the attorney or agent who signs below on the basis of the information supplied by the inventor(s) and the information in the attorney's or agent's file.

Dated: 9-11-03

Phone: (505) 845-9590
FAX: (505) 844-2363



Fred A. Lewis
Patent Attorney, Reg. No. 50,152
Sandia National Laboratories
Intellectual Property Center, 11500
P. O. Box 5800 / MS 0161
Albuquerque, New Mexico 87185-0161

Information Disclosure Statement
Xavier
SD6909.1/S97535
Page 2

CERTIFICATE OF MAILING

I hereby certify that this paper (along with any referred to as being attached or enclosed) is being deposited with the U. S. Postal Service on the date shown below as Express Mail No. EV332388196US in an envelope addressed to the:
Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Dated: 9/12/03

Martha Trujillo
Martha Trujillo

Please type a plus sign (+) inside this box



PTO/SB/08B (10-96)

Approved for use through 10-31-99. OMB 0651-003

Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

| | | | | | |
|---|---|----|---|--------------------------|-----------------|
| Substitute for form 1449B/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary) | | | | COMPLETE IF KNOWN | |
| | | | | Application Number | |
| | | | | Filing Date | |
| | | | | First Named Inventor | |
| | | | | Group Art Unit | |
| | | | | Examiner Name | |
| Sheet | 2 | of | 2 | Attorney Docket Number | SD6909.1/S97535 |

| OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS | | | |
|---|-----------------------|--|----------------|
| Examiner Initials | Cite No. ¹ | Include name of the author (in CAPITAL LETTERS), title of article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published | T ² |
| | | CAMERON, "Collision Detection by 4D Intersection Testing," <i>Int'l J of Robotics Research</i> , Vol. 6, No. 3, pp 291-302 (June 1990) | |
| | | CANNY, J., "Collision Detection for Moving Polyhedra," <i>IEEE Trans. On Pattern Analysis and Machine Intelligence</i> , Vol. 8, No. 2, pp 200-209 (1986) | |
| | | FUCHS, et al., "On Visible Surface Generation by a Priori Tree Structures," <i>Proc. Of ACM SIGGRAPH</i> , pp 124-144 (1980) | |
| | | GILBERT, et al., "Computing the Distance Between General Convex Objects in Three-Dimensional Space," <i>IEEE Trans. On Robotics and automation</i> , Vol. 6, No. 1, pp 53-61 (Feb 1990) | |
| | | GOTTSCHALK, et al., "OBB-Tree: A hierarchical Structure for Rapid Interference Detection," <i>Proc. ACM SIGGRAPH '96</i> , pp 171-180 (August 1996) | |
| | | SATO, et al., "Efficient Collision Detection Using Fast Distance Calculation Algorithms for Convex and Non-Convex objects," <i>Proc. 1996 IEEE Int'l Conf on Robotics and Automation</i> , Minneapolis, Minnesota, pp 771-778 (April 1996) | |
| | | XAVIER, P.G., "Implicit Convex-Hull Distance of Finite-Screw-Swept Volumes, 2002 IEEE Int'l Conf on Robotics and Automation (CRA) (May 2002) | |
| | | XAVIER, P.G., "Fast Swept-Volume Distance for Robust Collision Detection," <i>1977 IEEE Int'l Conf on Robotics and Automation</i> , (1977) | |
| | | | |
| | | | |

| | | | |
|--------------------|--|-----------------|--|
| Examiner Signature | | Date Considered | |
|--------------------|--|-----------------|--|

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[G:\ANNETTE\SD6909-1449p2.PTO.doc]

¹ Unique citation designation number. 2. Applicant is to place a check mark here if English language Translation is attached.



Under the Paperwork Reduction Act of 1995 no persons are required to respond to a collection of information unless it contains a valid OMB control number.

| | | | | | | | | |
|--|--------------------------|---|----|---|---|--|---|--------|
| Substitute for form 1449A/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary) | | | | COMPLETE IF KNOWN | | | | |
| | | | | Application Number | | | | |
| | | | | Filing Date | | September 12, 2003 | | |
| | | | | First Named Inventor | | Xavier | | |
| | | | | Group Art Unit | | | | |
| | | | | Examiner Name | | | | |
| Sheet | 1 | of | 2 | Attorney Docket Number | | SD6909.1/S97535 | | |
| U.S. PATENT DOCUMENTS | | | | | | | | |
| Examiner Initials | Cite No. ¹ | U.S. Patent Document Kind Code ² Number (if known) | | Name of Patentee or Applicant of Cited Document | Date of Publication of Cited Document | Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear | | |
| | | 5,537,119 | A | A.B. Poore, Jr. | 07/16/1996 | | | |
| | | 5,675,720 | A | Y. Sato, et al. | 10/07/1997 | | | |
| | | 6,054,991 | A | C.A. Crane, et al. | 04/25/2000 | | | |
| | | 6,099,573 | A | P.G. Xavier | 08/08/2000 | | | |
| | | 6,285,505 | B1 | A. Gueziec | 09/04/2001 | | | |
| | | 6,407,748 | B1 | P.G. Xavier | 06/18/2002 | | | |
| | | 6,535,215 | B1 | L.C. DeWitt, et al. | 03/18/2003 | | | |
| | | 6,577,925 | B1 | M.P.J. Fromherz | 06/10/2003 | | | |
| | | | | | | | | |
| | | | | | | | | |
| FOREIGN PATENT DOCUMENTS | | | | | | | | |
| Examiner Initials | Cite No. ¹ | Foreign Patent Document Office ³ Number ⁴ Kind Code ⁵ (if known) | | | Name of Patentee or Applicant of Cited Document | Date of Publication of Cited Document | Pages, Columns, Lines Where Relevant Passages or Relevant Figures Appear | T 6 |
| | | | | | | | | |
| Examiner Signature | | | | | Date Considered | | | |

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[G:\ANNETTE\SD6909-1449p1.PTO.doc]

1. Unique citation designation number. 2. See attached Kinds of U.S. Patent Documents. 3. Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). 4. For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. 5. Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. 6. Applicant is to place a check mark here if English language Translation is attached.